JOURNAL OF THE SOCIETY OF HEARING AID AUDIOLOGISTS

AUDECIBEL

MAY 1960

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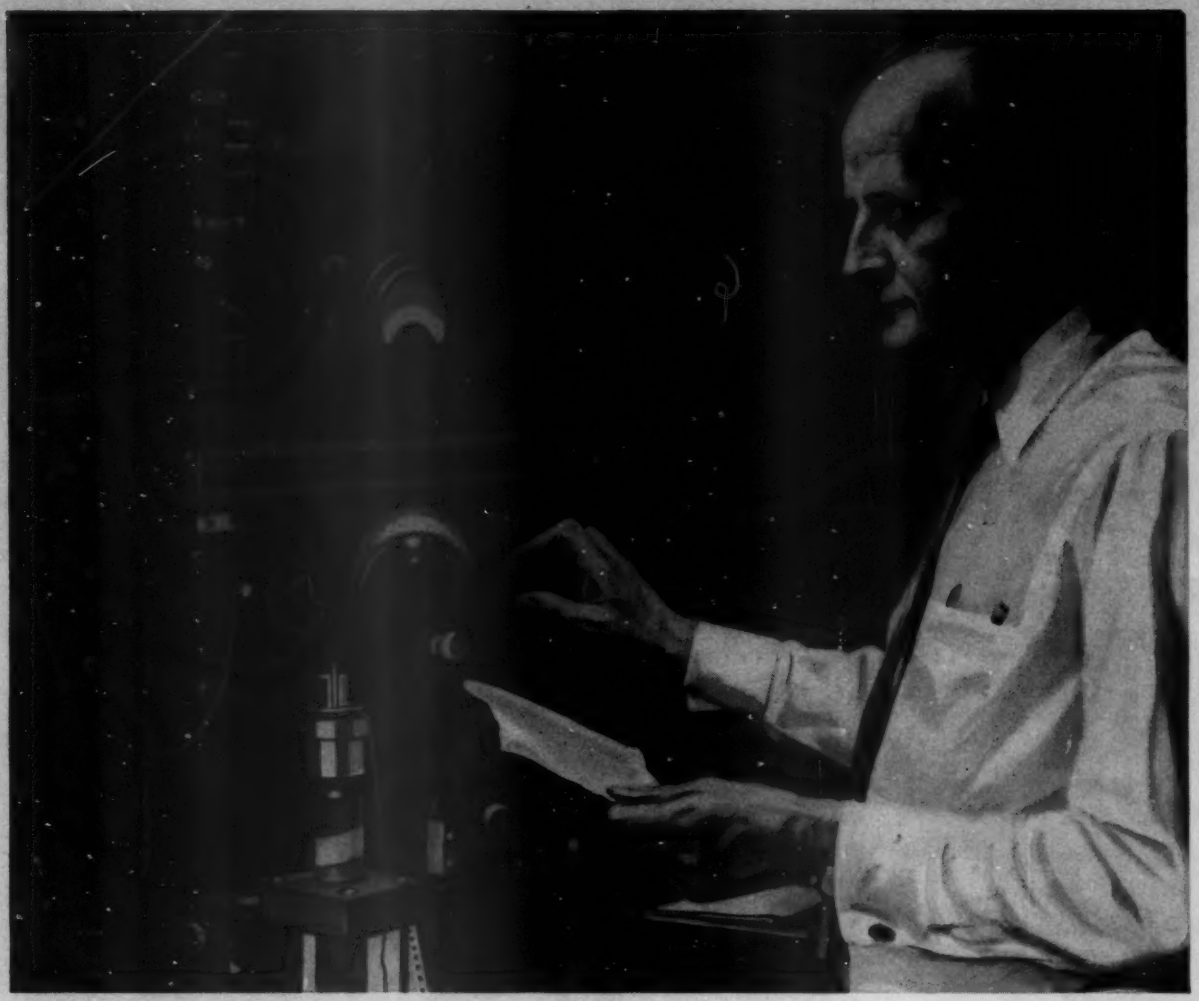
- **The Pressurelog Chart,** by John A. Victoreen, Ph.D. — If you turn the conventional audiogram upside down and plot your data on curved contour lines (to compensate for the audiometer's varying reference levels), you have a valuable new kind of chart that shows the *real* sound pressures involved.—**Page 7.**

- **Modern Concepts of Aural Rehabilitation,** by Richard A. Winchester, Ph.D. — A discussion, from the viewpoint of clinical audiology, of the effects of three influences: medical advances, hearing aid improvements, and increased understanding of deafness and communication. **Page 10.**



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260 Southfield Rd., Detroit 29, Mich.
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The Society of Hearing Aid Audiologists is dedicated to the goal of reaching and maintaining the highest possible standards in the field of hearing aid audiology. The purpose of AUDECIBEL is to promote rapport among all those concerned with the hard of hearing so that mutual and overlapping problems may be recognized and outstanding ideas, methods and experiences be shared for the greater benefit of all.

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Annual Meeting, Oct. 6-7-8, LaSalle Hotel, Chicago

The President's Page

Leland A. Watson

The entire hearing aid industry was saddened to learn of the death of Leland A. Watson, founder and president of Maico Electronics, Inc., and president of the Hearing Aid Industry Conference. He died in the crash of a commercial airliner on March 17, while en route to Miami to attend the Sixth Reunion of the Pan-American Congress of Oto-rhinolaryngology.

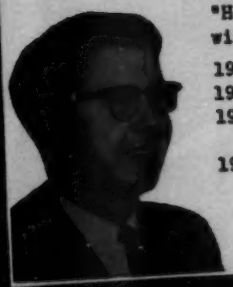
Lee's imperishable influence on the hearing aid industry, together with the warm personal regard all of us had for him, make his loss deeply felt -- not only by those of us in the Society of Hearing Aid Audiologists -- but by all persons everywhere who work with and help the hard of hearing.

It is indeed fitting that a medical scholarship fund will carry on, in Lee's name, the dedicated service to the sick and the handicapped which has long been a tradition in the Watson family.

Sincerely yours,

Kenneth S. Wood

MAURICE S. ALEXANDER–Findlay, Ohio



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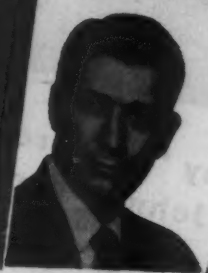

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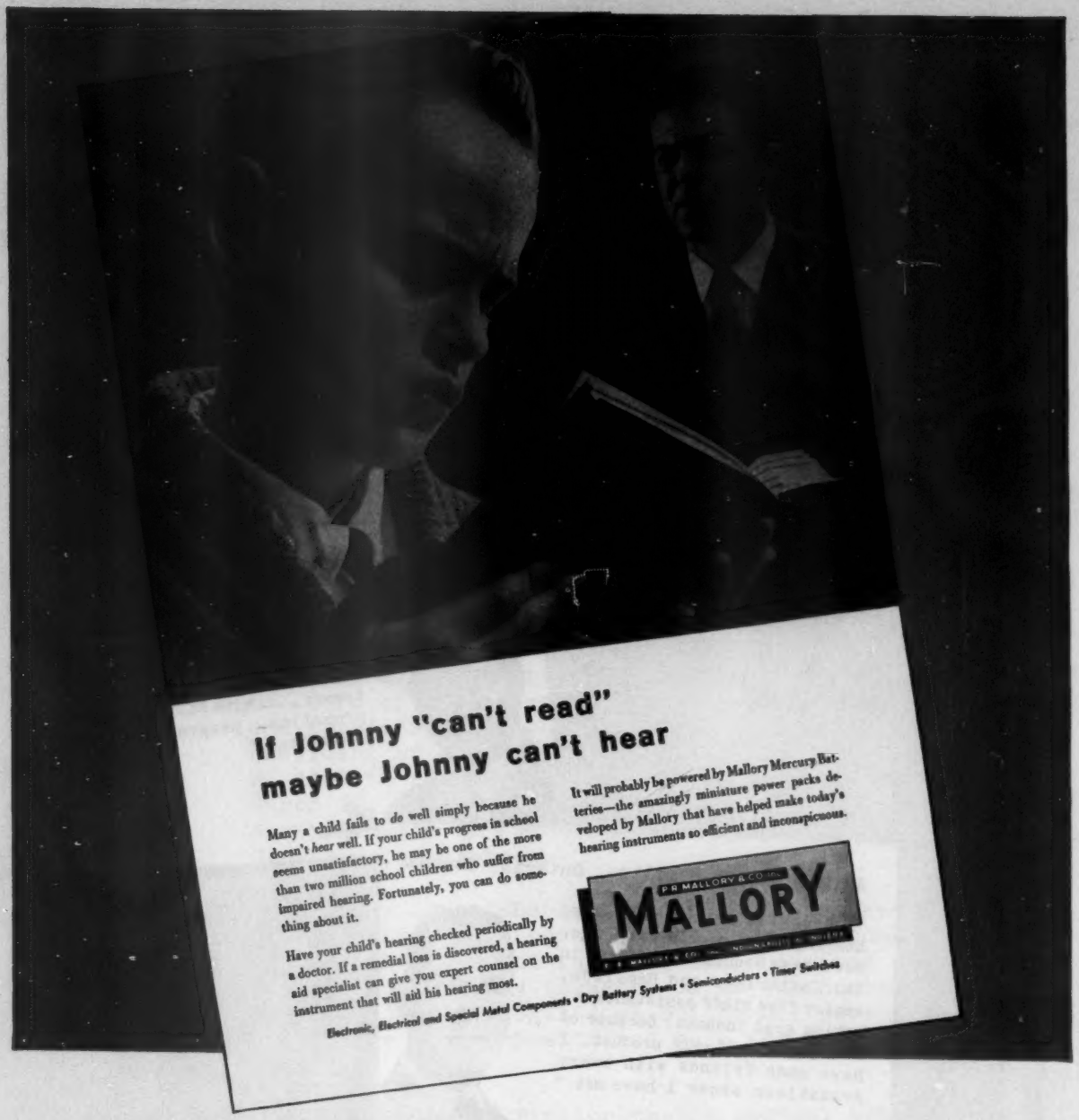
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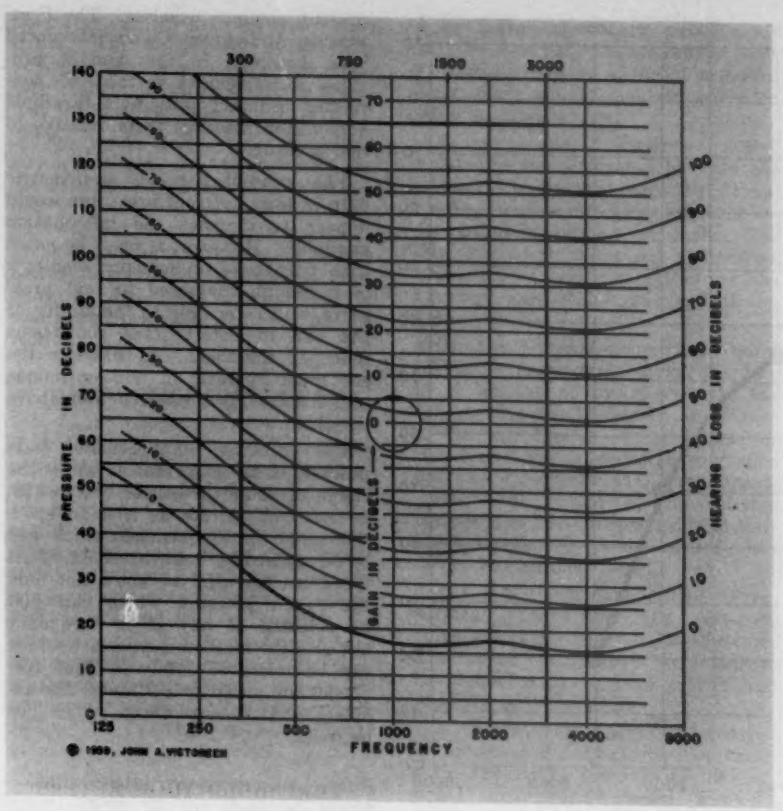


This new chart permits the plotting of hearing loss in terms of the real sound pressures involved.

THE PRESSURELOG CHART

By JOHN A. VICTOREEN, Ph.D.

PURE tone audiometry was originated as a diagnostic tool for indicating hearing loss. Hearing loss measurements made by means of an audiometer indicate generally the extent of existing nerve damage, the degree of loss of vibration transmission through the ossicular chain, congenital defects, etc. These are things that must be known if the possibility of surgical improvement is being considered. They are the things which describe what is wrong with the ear.

Residual hearing measurements, on the other hand, are concerned not with the extent of nerve damage but rather with the extent of nerve function. They are concerned not with the degree of transmission loss in the ossicular chain, but with the amount of vibration that can be made to pass through it. Residual hearing measurements are not concerned with what is wrong or why. They are concerned with what hearing still exists and how it can be artificially improved.

A pure tone threshold audiometer is not well suited for the measurement of residual hearing because it only assumes and does not measure how well the ear can operate at pressures above threshold. Where such an audiometer is the only instrument available, however, it is possible to "display" the hearing loss readings in such a manner that the residual hearing range is better visualized than it is on the usual audiogram.

The otologist, the audiologist, the hearing aid audiologist and the speech therapist all must have a different approach to hearing evaluation. Each therefore requires the information available on a particular ear to be in such form that it is most suitable for a particular purpose. Each must be able to visualize the problem from a different viewpoint.

At the present time, the pure tone threshold audiometer is one instrument used in common by all in the hearing field. It should be used to best advantage for cooperative effort. It is the purpose of this article merely to show that hearing loss measurements made with such an audiometer form a better means of mutual understanding between all concerned when measurements are given in terms of *real pressures* instead of relative pressures.

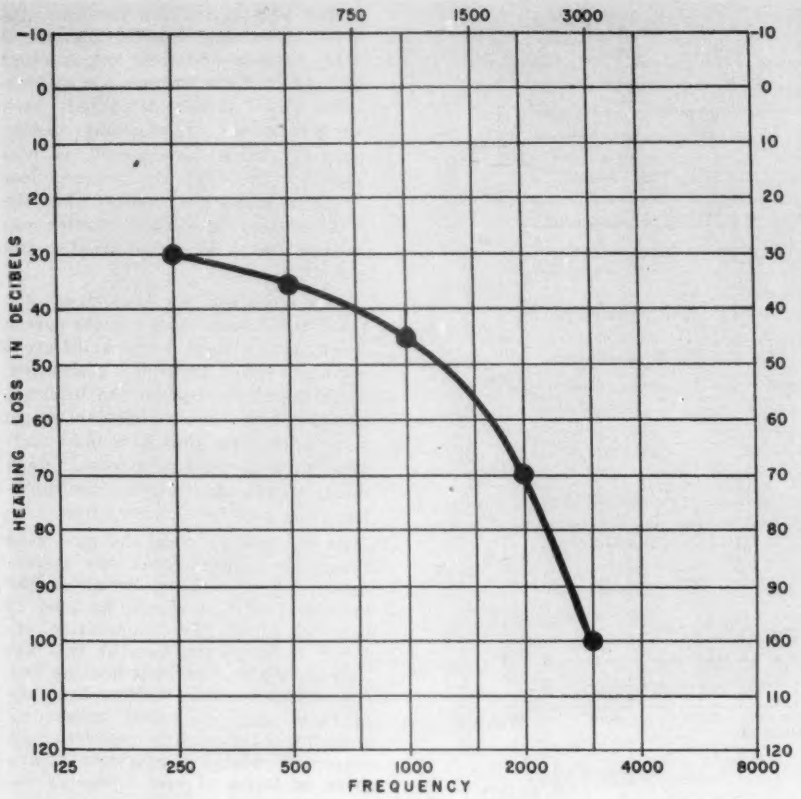
RELATIVE PRESSURES

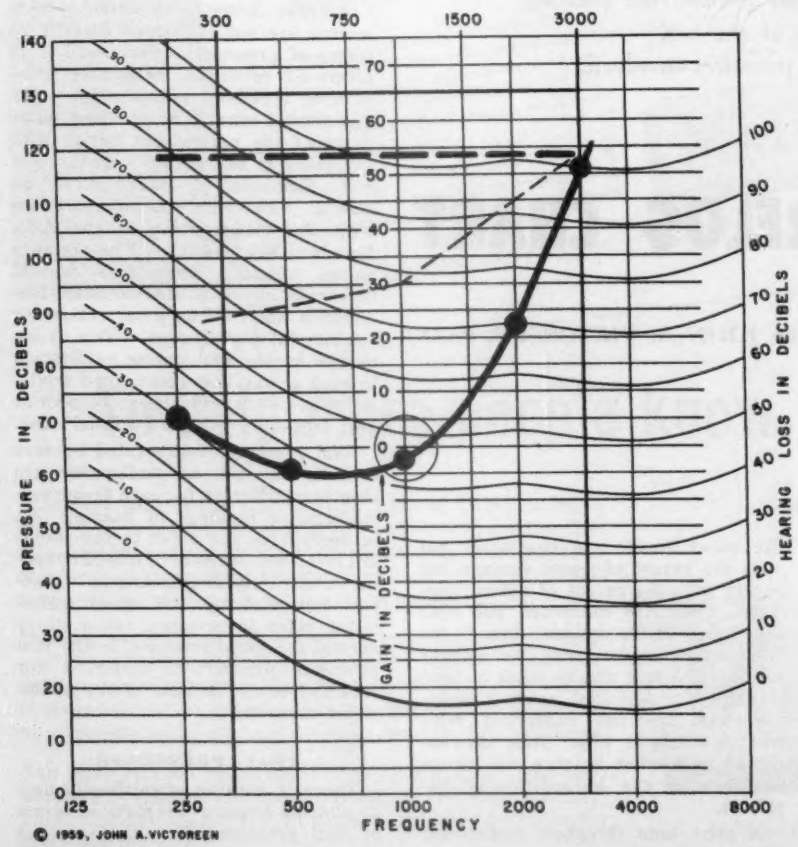
As you know, commercial audiometers are not calibrated directly in terms of pressure in decibels, but in terms of minimum detectable pressure or threshold pressure for average normal ears. The pressure sensitivity of the normal ear varies with frequency in accordance with the normal threshold pressure curve as shown. (This curve is in accordance with the values given in the ASA Standard Z24.12-1952). The pressure values obtained from this normal threshold curve at the various frequencies are used as a *correction* for commercial audiometers. This is included in the audiometer calibration in such a way that commercail audiometer readings will always be zero at any frequency with a "normal" ear.

Real pressures represented by zero decibels on such an audiometer are therefore different for each frequency. Audiometer readings of hearing loss in decibels do not refer to the standard reference pressure of 0.0002 dynes/cm^2 under any circumstances. Decibels indicated by the usual audiometer refer to pressure ratios *above normal threshold pressure*, so the real reference pressure is different for each frequency, because of the audiometer correction.

REAL PRESSURES

There is nothing scientifically new in plotting hearing loss data in terms of real pressures, but it is not, at





present, common practice. The Pressurelog Audiogram Chart introduced here, however, is *new* and it provides a convenient method of converting ordinary pure tone threshold audiometer readings from relative to real pressures.

The presentation of audiometric data in terms of real pressures would appear to increase the information available. However, it must be noted that pure tone audiometer readings, even though converted to real pressures, still refer only to the ability of the ear to detect pure continuous tones at threshold. In practice the ear must operate on non-continuous sound cycles at pressures well above threshold.

For hearing enhancement purposes it is as important to know the range of sound pressures over which an ear can operate as it is to know the range of frequencies which can be recognized by it at threshold. It is therefore essential to know not only the sound pressure which can just be detected at any given frequency but also the maximum pressure which can be tolerated safely at that frequency in order to estimate the usable sound pressure range which lies between.

"THRESHOLD AUDIOMETERS"

The function of "audiometry" is to analyze and record hearing which exists within the hearing range. An "audiometer" is an instrument used to make the measurements. Unfortunately, most audiometers in use are not general purpose instruments but are "threshold audiometers" which are limited to the measurement of minimum detectable pressures. These instruments are calibrated to indicate "hearing loss in decibels." The term "audiogram" as commonly used therefore refers only indirectly to minimum real pressures which an ear can detect. Without other measurements, some acceptable safe maximum tolerable pressure must then be assumed as the maximum limit of the sound pressure range.

In order to be heard by the ear, sounds must have pressure enough to exist in the region between the minimum and maximum usable pressures, or be raised by means of an instrument having acoustic gain to

TOP (Fig. 1): Conventional audiogram presents data in terms of arbitrarily "straightened" zero line.

BOTTOM (Fig. 2): Pressurelog Chart indicates real pressures on curved contour lines; light dotted line shows frequency response of a proposed hearing aid; heavy dotted line shows instrument's maximum output.

pressures which are between these limits. The importance of knowing or assuming the safe maximum pressure limit of the hearing range therefore becomes obvious.

The usual pure tone threshold audiogram aids in "visualizing" the *deviation* in threshold sound pressure, if any, which exists at each frequency *with respect to* the hearing threshold for an "average normal ear," which is a purely relative measurement. It gives no direct visualization of the real sound pressures required for detection.

AUDIOMETER CORRECTION

It is the purpose of this article to show that it is possible to display the usual threshold audiometer readings as a graph on a specially drawn chart which converts the relative audiometer readings to real sound pressures and at the same time shows them in proper relation to the whole usable sound pressure range. This is accomplished by curving the usually straight audiogram lines (representing hearing loss) in such a manner as to properly include an audiometer pressure correction which relates the plotted values to real pressures.

Defining the maximum and minimum limits of the hearing range does not, in itself, prove what the sensations of the ear may be in the range which lies between. There is no direct substitute for evaluating residual hearing at the pressure level of most comfortable loudness. This, however, requires equipment designed for the purpose.

The Pressurelog Method given in this article is intended for use where such equipment is not available and/or where it is desired to obtain the maximum possible information from the usual audiometer readings.

The accompanying chart shows the desirability of considering both minimum and maximum pressures. This is important because any attempt to enhance defective hearing depends upon supplying an instrument to increase usual sound pressures so as to bring them into the remaining usable pressure and frequency range of the ear.

Hearing is best considered in terms of real pressures because any proposed method of improvement must deal with real pressures.

PRESSURELOG CHART

The Pressurelog Chart, shown in Figure 2, includes the hearing range generally covered by audiometry. The heavy lines enclose the range of pressures and frequencies which are available in quality hearing instruments. If a measurement of maximum tolerable pressure is not available and there is no evidence of a pressure tolerability problem, it may be assumed that an upper limit of 130 db may be expected to exist. This limit should not be exceeded without good reason.

A comparison of Figures 1 and 2 illustrates the difference between the ordinary audiogram and the "Pressurelog" audiogram when the same information is plotted on each. The dots represent the same audiometer hearing loss reading plotted on the hearing loss scales in decibels on both charts.

On the regular audiogram, shown in Figure 1, the zero hearing loss line is at the top of the chart. On the Pressurelog Chart, shown in Figure 2, the zero line is at the bottom of the chart. While one of these graphs may be considered as being "upside down," the shape of the plotted threshold is also different due to having been plotted on the curved lines of the Pressurelog Chart.

The upper boundary of the "Pressurelog" represents the assumed value of maximum tolerable pressure. The actual value may be found to be higher or lower than this if and when it is determined.

If an instrument is to be provided for hearing enhancement, the maximum deliverable pressure of the proposed instrument should also be drawn on the chart to make certain the instrument itself is not the limiting factor in determining the hearing range that is available to the ear.

NORMAL RANGE CENTER

The circle is assumed to roughly represent the normal range center or sound level and frequency of the most abundant sounds encountered by the ear under ordinary circumstances. These are assumed to be the sounds which must be raised in pressure to a new center when a hearing instrument is used. The new center must of course be somewhere above the abnormal threshold.

Gain is read on the straight lines using the center scale. This scale indicates how many decibels of gain are required to raise the average sound pressure level at the eardrum from 65 db to the new range center required for best hearing enhancement. The real pressure to which such sounds will be raised by any given gain may be read from the scale of actual pressures at the left.

The heavy vertical lines at 300 and 3000 cps define the frequency range of most importance. This is the range which is enhanced by means of suitable hearing instruments.

MAXIMUM OUTPUT

The heavy dotted line in Figure 2 represents the maximum deliverable output pressure of a proposed hearing instrument rated at 118 db. The heavy abnormal threshold line almost touches the dotted line at 3000 cps. This indicates that the proposed instrument will not deliver a pressure high enough to be satisfactorily heard by the particular ear at 3000 cps regardless of the frequency response of the instrument.

This is the reason that many instrument users having insufficient instrument output capability often find it necessary to adjust the gain control to a very critical point which varies under different listening conditions. Unless the instrument control is set exactly right, the higher frequencies are either not loud enough to be heard or else they overload the instrument and cannot be reproduced.

The light dotted line, shown in Figure 2, illustrates how the frequency response curve of a proposed instrument may be drawn on a Pressurelog Chart to visualize the operating range which is made available.

The hearing loss represented by the abnormal threshold shown is purposely extreme in order to better show the principles involved.

No attempt is made in this article to cover in detail the various ways in which the Pressurelog Method can be used by those working in the field of hearing. The otologist, the audiologist and the hearing instrument dispenser will each recognize the advantages for the particular application as well as the possibilities for mutual cooperation which this chart provides.

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About the Author . . .

John Austin Victoreen is listed in American Men of Science as a physicist. Since his retirement (1950) from the scientific instrument field, he has spent much of his time and effort in the field of hearing and hearing enhancement. In 1954 he founded The Vicon Instrument Co., which maintains a consulting relationship with his research laboratory. Dr. Victoreen received his honorary doctorate from the John Carroll University, of Cleveland. He has served as a member of the Civilian Export Advisory Committee of the Atomic Energy Commission. He is a member of the Acoustical Society of America, The Institute of Radio Engineers, and the American Physical Society. He has contributed numerous papers to the technical journals.

MODERN CONCEPTS OF AURAL REHABILITATION

By RICHARD A. WINCHESTER, Ph.D.

Speech presented at the 8th Annual Meeting of the Society of Hearing Aid Audiologists, October 10, 1959.

It is with distinct pleasure that I take this opportunity to share with you some of my thinking regarding present-day audiologic techniques for rehabilitating the acoustically handicapped. In addition, I should like also to touch upon the means whereby your activities and the efforts of the clinical audiologist may be made more effective through the development of closer working relationships between the two fields of endeavor.

Ours is a very rewarding pursuit for, when successful, it enables the hard of hearing person to take part in one of man's most important activities—communicating with his fellow beings. In spite of the many satisfactions which working with the deaf and hard of hearing can bring, those of us who are engaged in this area of rehabilitation are acutely aware of the many frustrations which accompany these activities.

COMPLEX PROCESS

As those of you in the hearing aid industry well know, the process of bringing back sound and appreciation of the spoken word to the acoustically deficient person is a difficult and complex one requiring the training, skills and active participation of different specialists.

Parenthetically, it might be noted that this task is not made any more the easier by the fact that the deaf themselves are among the few handicapped groups which must be "sold" on the necessity for rehabilitation.

The blind, for example, eagerly seek the means of compensating for their sightlessness, while the orthopedically handicapped person is quite willing to put up with the discomfort and inconvenience of the oftimes bulky mechanical devices designed to enhance his powers of locomotion.

The acoustically handicapped, on the other hand, take, on the average, five years to decide that they do have a hearing problem and therefore must seek assistance. This unfortunate characteristic influences all of our relationships with our clients and patients, and, unless we are willing and able to overcome this reluctance or even unwillingness to accept the help that is available, our efforts to assist will certainly meet only with limited success.

MORE COOPERATION SEEN

Today, I believe we are setting a precedent of sorts, for we have, on a single platform, representatives of three areas most directly concerned with the rehabilitation of the acoustically handicapped. It is true, in times past, that often these specialties tended to pursue their own particular courses of action, with insufficient regard or interest in what the other fellow was trying to do.

Today, however, there is evidence that more and more cooperation and mutual understanding are being developed among us. I believe that the make-up of this panel gives good evidence of this fact, and it is significant that you the representatives of the hearing aid industry are interested in what is going on over the fence, so to speak, in the areas of otology and clinical audiology.

The remarks which I am making today regarding modern concepts of aural rehabilitation are made from the standpoint of a clinical audiologist working in a private practice setting. Therefore, it is possible that some of the ideas which I present may not necessarily apply to my fellow-workers in governmental or public hearing conservation facilities.

Although clinical audiology has been a distinct specialty for a scant 15 or so years, the field has already experienced many changes in concept and practice. This is to be expected, for in the beginning, clinical audiology represented the uneasy union of a number of previously unrelated fields—otology, the art of hearing aid fitting, education of the deaf, speech pathology, psycho-acoustics, the psychology of the handicapped, and so on. Great changes in this field have occurred since the days of the early Army, Navy and VA Aural Rehabilitation Programs.

The influences which have produced the changes in present-day audiologic rehabilitation principles and practice stem from three major sources: (1) advances in the medical and surgical treatment of chronic deafness; (2) improvement in the design and manufacture of hearing aids; and (3) an increased understanding of the psychophysics of deafness and the psychology of communication.

All three of these influences have resulted in alteration in the concept and practice of providing auditory training, speech reading and speech conservation to the acoustically handicapped. Therefore, I would like to outline briefly just what these influences have been, and discuss their implications with respect to the working relationships among the various specialists interested in rehabilitating the deaf and hard of hearing.

Recent advances in middle ear surgery involving the surgical techniques just described by Dr. Myers have resulted in an alteration of the distribution of the types of hearing loss cases requiring hearing aid help. It is not at all difficult to remember the time when a significant proportion of persons seeking a hearing aid presented a substantial middle ear element in their hearing loss. And we cannot help but remember that these same persons were the ideal candidates for hearing aid usage, for, given a minimum of attention to the hearing aid fitting procedure, their adjustment to acoustic amplification was generally swift and uneventful.

Today, however, because of the increasing number of persons who have had successful surgical reduction of the conductive loss of hearing, the greater proportion of patients requiring the assistance of acoustic amplification, in my experience at least, presents the mixed or purely perceptive type of deafness. As a result, there are very few simple hearing aid selection cases, and every patient tested nowadays is potentially a "problem case." As a result, the need for comprehensive follow-up training in auditory discrimination, speech reading and speech conservation is greater than eevr before.

I would like to suggest also that it is no longer practical for the clinical audiologist to recommend a

hearing aid and then send the patient on his way without some consideration being given to providing the all-important after-care in adjusting to the hearing aid, a program, incidentally, which the clinical audiologist is best equipped to present.

It is important to note that I do not stand alone in this matter, and that throughout the country many of my colleagues are experiencing a resurgence of interest in the application of auditory training and other aspects of aural rehabilitation, with the result that these services are becoming increasingly available to the public.

HEARING AID IMPROVEMENTS

The second important factor in the evaluation of clinical audiology relates to the spectacular improvements in hearing aid design which have occurred in the past decade. The great reduction in size and operating costs of the hearing aid while at the same time maintaining the required acoustic power output and fidelity of reproduction is indeed a miracle of engineering skill.

Not only have these modern instruments made life easier for the long-term hearing aid user, but also they have opened up new opportunities for fitting persons who heretofore were considered beyond the help of a hearing aid. The development of practical ear level applications which eliminated the receiver cord and the disagreeable burden of clothing noise has enabled us to recommend hearing aids to patients with border-line losses, or those whose major auditory disorder was the understanding of speech only. Also included in this group are those persons who become occasional users at the theater, conference table or business office.

While the smaller size and greater convenience of today's hearing aids have made it possible to assist many patients who never could have worn the conventional type of instrument, the need for follow-up training and aural rehabilitation has in no way been reduced. On the contrary, it is my firm conviction that no borderline or problem case should be recommended to hearing aid use unless the clinical audiologist concerned is prepared to provide the all-important follow-up training that is so essential to successful adjustment to the hearing aid in this case.

Finally, advances within the field of clinical audiology itself are bringing about changes in the rehabilitation of the deaf and hard of hearing. As an example of this, there is now going on within our professional ranks a critical re-evaluation and scrutiny of present techniques of hearing aid selection. Recent research in this regard has cast doubt upon the effectiveness of clinical procedures now in common use.

The trouble seems to lie mainly in two areas: (1) insufficient test-retest reliability when evaluating a series of hearing aids and (2) lack of sufficient uniformity of acoustic output characteristics in most of today's transistor hearing aids.

OTHER TECHNIQUES NEEDED

In other words, we now have data which strongly suggest that other or additional psycho-acoustic measuring techniques for determining the precise characteristics of acoustic amplification best suiting the requirements of the individual patient are needed. Further, because of the variation in output characteristics from one instrument to the other of the same make and model, we are faced with the realization that some other method of hearing aid selection could be of value.

In this connection, many audiologists are looking forward to the development of a practical master hearing aid or some similar device. It is my understanding that this concept is now being researched by the members of the hearing aid industry, and its eventual successful development will be welcomed by many of us engaged in the professional aspects of this field.

Aside from the possibility that such future developments will improve our means of determining the precise characteristics of the pattern of acoustic amplification best suited for each hard of hearing patient, I suspect also that they may result in better and closer working relationships between the professional and commercial workers in this field.

In this regard I am sure that most of you can remember the bad old days shortly after World War II when many civilian audiology and hearing aid clinics were being set up. I am convinced that many of the areas of doubt and misunderstanding which persist among us today had their origin during this period. In many instances, poorly trained audiologists, or persons with insufficient experience were in the business of recommending hearing aids. At the time, there was justifiable criticism of these activities by the leaders of the hearing aid industry.

Since that time, however, there has been an improvement in working relations between the two groups involved. This, I believe, is due to the fact that we both have sought to clean up our own houses. Clinical Audiology, through the efforts of its national organization, the American Speech and Hearing Association, has constantly fought for higher standards of professional training and clinical certification. The members of the hearing aid industry have also seen the general improvements in conditions within the retail aspects of the industry.

The existence of your Society with its avowed purposes of improving the technical and ethical standards of the hearing aid business is good evidence of this fact.

In addition, there is a growing realization that until such time that radical changes are made in hearing aids and the methods of supplying them to the general public, both the commercial and the professional aspects of the field are required if the hard of hearing patient is to be rehabilitated most effectively. Hence it behooves both groups to continue to do as we are doing today—searching for better understanding and cooperation on both sides of the street.

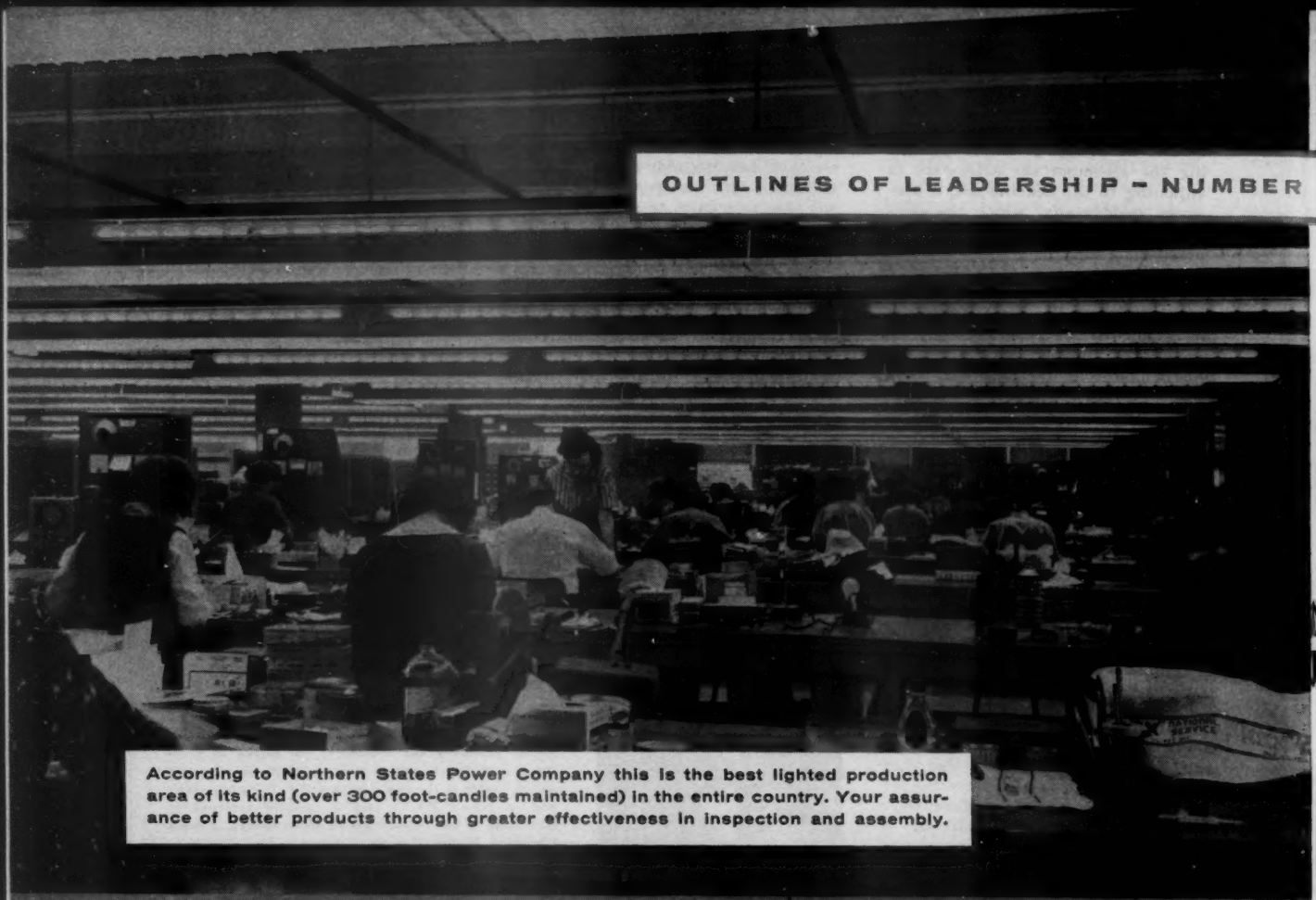
In conclusion, I would like to suggest that I take it as a distinct honor to have been invited to speak before this group, and am looking forward to renewing old friendships with members of the industry with whom I have had such good working relationships in the past. It was my conviction then, as it is now, that the brand name of the hearing aid is far less important than the good name of the man standing behind it.

Therefore, I would most certainly look forward to future meetings of this type, for from this kind of free exchange of ideas we should be able to engender a continued improvement in the techniques and instrumentation of hearing rehabilitation as well as a greater degree of mutual understanding and close cooperation among the various fields serving the hard of hearing population.

About the Speaker . . .

Dr. Winchester received his Ph.D. in Audiology from the University of Southern California. He has taught speech pathology and audiology, has served as a research audiologist, and as director of the hearing and speech center at the San Francisco VA Hospital. He's now in private practice and is assistant professor of Audiology at the Department of Otorhinology, Temple University Medical Center.

OUTLINES OF LEADERSHIP – NUMBER 3



According to Northern States Power Company this is the best lighted production area of its kind (over 300 foot-candles maintained) in the entire country. Your assurance of better products through greater effectiveness in inspection and assembly.

In facilities: Pictured is an assembly group on the first floor of the recently completed addition to the Dahlberg factory. Expanded manufacturing, engineering and administrative facilities are now integrated in this modern industrial plant located in suburban Golden Valley.

In research: Our greatly enlarged program, using the vast facilities of Dahlberg and Motorola for research and development, brings to the industry the most advanced concepts in better hearing through electronics.

MIRACLE-EAR III

Ultra-miniature "ear-level" aid with surprising power and versatility.

MARK III

Distinctive "behind-the ear" cordless hearing aid. Ideal for most losses... compact... powerful ... comfortable... inconspicuous!

OPTIC-EAR 2

Eyeglass temples that set new standards for slimness, balance, design and economy.

CONTACT-EAR

Trim, lightweight eyeglass temples that make bone conduction hearing attractive and practical.

Dahlberg hearing aids have been tested & approved

REPLACEMENT OR REFUND OF MONEY
Guaranteed by Good Housekeeping
IF NOT AS ADVERTISED THEREIN

CHATELAINE INSTITUTE SEAL OF APPROVAL

... by these famous institutes.

DAHLBERG EXPANSION MEANS GROWTH

for the Hearing Aid Dealer who expects...

MORE MANAGEMENT and FINANCIAL HELP

The Dahlberg Plan for Dealer Operation simplifies your office accounting, record keeping, bookkeeping and billing. Our New Improved Floor Plan provides the financial help you may need.

MORE SALES and TRAINING HELP

Dahlberg gives you on-the-job assistance from trained factory personnel with successful backgrounds in the hearing aid business. We believe our new Sales Training Program to be the most inclusive ever offered.

MORE ADVERTISING and PROMOTION HELP

Dahlberg provides pre-tested promotion programs—attention getting display material—combined with a new cooperative Direct Mail approach that will insure the kind and quantity of leads necessary for your success.

The planned way for you to prosper!

THE DAHLBERG COMPANY, GOLDEN VALLEY, MINNEAPOLIS 27, MINNESOTA

Foremost in Ear-Level Hearing

DAHLBERG

A SUBSIDIARY OF MOTOROLA INC.

LIMITED NUMBER OF FRANCHISES AVAILABLE

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P. O. Box 547, Terminal A, Toronto, Ontario

Society News and Views

CALIFORNIA CHAPTER held its March meeting at the Miramar Hotel, Santa Barbara. Pictured above, at head table, are Harold Pahl (secretary-treasurer), Georgina Glanz, Esther Daniel (president), Roy zumBrunnen (governor), and SHAA Governor Verl Conn. August meeting will be held in Northern California, and will be open to non-members; Jack Taylor will be in charge. Dates and place of August meeting will be announced later.

Report From Headquarters

• **Meetings.** Right now we're busy as all get-out, preparing for the spring meeting of the Society's Board of Governors. It'll be held at Chicago's LaSalle Hotel—the same place where we'll all gather this October 6-7-8 for the Society's 9th Annual Meeting.

Plans for the Annual Meeting are moving ahead swiftly, according to Annual Meeting Chairman Stanley Foster. Registration at the hotel will take place:

1:00-9:00 p.m., Thursday, Oct. 6

8:00 a.m.-4:00 p.m., Friday, Oct. 7

The program will begin Friday morning, although there'll be a special "early bird" event for those who arrive Thursday evening.

By the way, it's not too early to make your hotel reservations NOW; you do do this by writing directly to the LaSalle Hotel, LaSalle at Madison, Chicago, Ill.

• **Shape of Things to Come.** Future issues of AUDECIBEL will bring you more and more technical articles like the one on the Pressurelog Chart (page 7). For example, we're hard at work on a special issue on problems of children—and we've got some really top-notch talent lined up to help us cover this subject thoroughly.

You'll also be reading more and more articles about the personal experiences of Certified Hearing Aid Audiologists in their day-to-day work of helping people achieve better hearing.

SOCIETY WELCOMES 21 NEW MEMBERS

The Society of Hearing Aid Audiologists extends a cordial welcome to the following new **Certified Hearing Aid Audiologists:**

Appleby, Charles H. San Diego Hearing Aid Center, 409 Land Title Bldg., San Diego 1, Calif.

Barr, Edward R. San Diego Hearing Aid Center, 409 Land Title Bldg., San Diego 1, Calif.

Barr, Irene. San Diego Hearing Aid Center, 409 Land Title Bldg., San Diego 1, Calif.

Christensen, Elfreda. 526 W. Fifth Ave., Pomona, Calif.

Clary, Bert L. Acousticon Clary Co., 89½ W. Third St., Mansfield, Ohio.

Deal, Edward C. Beltone Hearing Aids, 909 6th Ave., San Diego, Calif.

Dell, Sylvester A. E. Weinberg & Associates, 7915 S. Halsted, Chicago 20, Ill.

Doran, Howard M. Beltone Hearing Service, 1315 Fourth Ave., Seattle 1, Wash.

Elias, Johnny. Beltone Hearing Service, 105 S. Court Ave., Memphis, Tenn.

Faust, James C. Audiphone Co., 709 Pere Marquette Bldg., New Orleans, La.

Hancock, Louis M. Acousticon-Hancock Co., 916 Stuart Bldg., Lincoln 8, Nebr.

Hertert, Marie L. Maico-Otten & Associates, Medical Arts Bldg., Omaha, Nebr.

Lehman, Otho G. Sonotone of San Jose, 25 S. 2nd St., San Jose 13, Calif.

McMillen, William N. Acousticon of Zanesville, 59 S. 4th St., Zanesville, Ohio.

Newell, Marie D. Beltone Hearing Service, 220 State Line, Texarkana, Ark.

Overmyer, Harry B. Overmyer Hearing Aid Service, 420 Sherland Bldg., South Bend 1, Ind.

Thompson, Gilbert E. Audivox Hearing Center, 408 Main St., Evansville, Ind.

Trymucha, Max. Beltone Hearing Service, 916 Marin St., Vallejo, Calif.

Vaupel, William E. Hearing Aid Center, 15 Odd Fellows Bldg., E. Liverpool, Ohio.

Wells, Jess K. Wells Hearing Aid Center, 213-14 City Nat'l Bank Bldg., Omaha, Nebr.

Williams, Katherine M. New Mexico Hearing Center, 112 $th St., N.W., Albuquerque, N. M.

NEW APPLICATIONS RECEIVED

Initial Applications

Bradshaw, Franklin E. Otarion Listener, 36 E. Broadway, Tucson, Ariz.

***Cook, Robert J.** Audiphone Co., 204 W. Saratoga St., Baltimore 1, Md.

Davis, Allan L. Hollywood Hearing Center, 2110 Hollywood Blvd., Hollywood, Fla.

Elmore, Robert. Mountain State Hearing Aid Center, 125½ Main St., Beckley, W. Va.

Gaston, Morton L. Crenshaw Better Hearing Services, 3701 Stocker, Los Angeles 8, Calif.

Hackett, Albena W. Acousticon of New Haven, 150 Temple St., New Haven, Conn.

Kuhns, Agnes L. Audiphone Co., 324 Market St., Johnstown, Pa.

McCormick, Glen F. Maico Detroit Co., 522 David Whitney Bldg., Detroit 26, Mich.

Patton, John H., Jr. Beltone Hearing Service, 830 State Life Bldg., Indianapolis 4, Ind.

Prather, Alvin L. Transistor Hearing Aid Co., 3636 7th, Riverside, Calif.

Robin, Henry R. Hearing Aid Institute, 477 Congress St., Portland, Me.

Waters, Joseph M. Beltone Hearing Service, 416 Pine Ave. Albany, Ga.

Wiggins, Clifford W. Traylor-Wiggins, 205 W. York St., Norfolk 10, Va.

Zona, Frank G. Fonte Opticians, 765 Clintone Ave., N., Rochester 5, N. Y.

Applications for Reinstatement

Holland, George D. Holland Hearing Aid Center, 1914 Ave. Q, Lubbock, Tex.

Holland, Agnes. Holland Hearing Aid Center, 1914 Ave. Q, Lubbock, Tex.

****Includes firm application.***

Miscellany

HAIC Announces 1960 Workshops

Three educational workshops have been announced for 1960 by the Education Committee of the Hearing Aid Industry Conference. The schedule:

- Northwestern University, Evanston, Ill., June 12-15.
- Stanford University, Stanford, Calif., July 17-20.
- University of Pittsburgh, Pittsburgh, Pa., Sept. 14-17.

David H. Barnow, chairman of the Education Committee, urged all prospective students to sign up right away. "Quite a few dealers had to be turned away last year because of limited facilities," Mr. Barnow said. "Registration must be handled on a first-come, first-served basis — it's only fair that way. So the committee urges prospective students to sign up immediately."

Registrations can be made by writing to Robert L. Edgell, secretary, Hearing Aid Industry Conference, 1 E. First St., Duluth, Minn. Payment of $85 (which covers tuition, meals and room) should be enclosed, with check or money order made out to Hearing Aid Industry Conference, Inc. Indication should be made of which session is desired.

Workshops will feature lectures and discussions on the auditory system, disorders of hearing, audiometry and testing, modern ear surgery, and the physical characteristics of hearing aids.

As was true last year, the faculty will be composed of top men in their fields. For example, here's a partial listing of those who'll appear on the Northwestern program: Raymond Carhart, Ph.D.; George E. Shambaugh, Jr., M.D.; Helmer Myklebust, Ph.D.; William Hardy, Ph.D.; Hayes Newby, Ph.D.; and Leo Doerfler, Ph.D.

CORRECTION

We wish to correct the impression given in the March AUDECIBEL (page 22), which reports on the launching of the *Journal of Auditory Research*. This publication will be independently published, edited and distributed by the C. W. Shilling Auditory Research Center, Groton, Conn. The Beltone Institute for Hearing Research has provided a $2,000 grant to the Center, but will have no other role outside of a friendly interest in the publication.

HAIC Gives $1,000 to ASHF

A contribution of $1,000 for the furtherance of the progress of audiology has been made to the American Speech and Hearing Foundation by the Hearing Aid Industry Conference, the trade association of hearing aid and component manufacturers.

According to the HAIC, the gift is to be used as the Foundation sees fit in advancing the study of audiology or in any other way that will further interest in hearing problems, whether or not this concerns hearing aids.

The Foundation is associated with the American Speech and Hearing Association. Its chairman is Wendell Johnson; president is M. D. Steer. The Foundation's purpose is to advance scientific and educational endeavor in speech pathology and audiology. It receives funds from donors and distributes these as grants.

HEARING AID BUILT INTO CRASH HELMET

Certified Hearing Aid Audiologists are sometimes called on to exercise their utmost ingenuity in providing their customers with better hearing. Here's an example of what we mean:

THE PROBLEM: At the age of 18, Ernest S. Knight began his racing career, developing his skill in the racing of all types of racing cars. But he had a hearing deficiency, and as a result felt he was not getting a fast enough start in his races due to the fact that he did not hear the starting gun. Moreover, he did not hear the other cars around him. He felt the need for a hearing aid, but the problem was: could one be built into the crash helmet which he wore while racing?

With this problem, Mr. Knight approached Joseph P. Fortier, Certified Hearing Aid Audiologist, and Audiotone dealer in Santa Cruz, Calif.

THE SOLUTION: Mr. Fortier sent the crash helmet to the factory, which designed a way of building the instrument into and around the helmet.

THE RESULT: Mr. Knight is able to wear the hearing aid comfortably. It provides him with the necessary split-second hearing of the starting gun and of the speeding racers that are all about him.

JOSEPH P. FORTIER, Certified Hearing Aid Audiologist (left), explains to Mr. Knight the functions of the specially built hearing aid.

BELTONE'S ARTIFICIAL MASTOID HELPS CALIBRATE AUDIOMETERS

PRECISE calibration of audiometers for bone conduction can now be accomplished using a new artificial mastoid developed by Erwin Weiss, director of physical research at Beltone Research Laboratories, Chicago.

And because the new device can be accurately reproduced in a machine shop, and is extremely stable, acoustic scientists everywhere can use it to communicate experimental results and performance data.

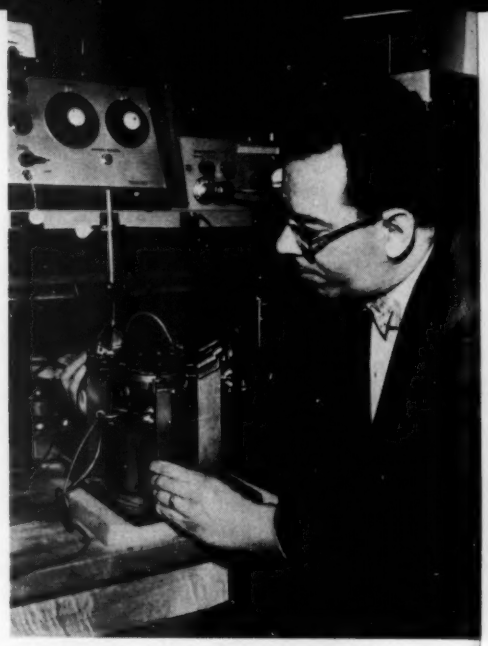
The artificial mastoid is a mechanical working model that functions exactly as if it were a human mastoid. The mastoid can be felt as a small bump just behind the external ear. It communicates with the petrous portion of the temporal bone, which contains the cochlea. In the cochlea, sound waves are changed into nerve impulses.

When a hearing aid utilizes bone conduction, the bone conduction oscillator is placed against the head over the mastoid, and the sound waves can be transmitted through the bone directly to the cochlea, bypassing the external and middle ear.

In the past, artificial mastoids have suffered from two disadvantages: either they have been so complicated that they were not easily reproducible, or they have used rubber or other visco-elastic substance to simulate living tissue. The composition of such a substance may vary from batch to batch; its characteristics may change with changes in temperature or humidity, or with aging.

The new artificial mastoid, however, uses air friction and a special magnesium alloy instead of rubber. It is relatively simple to reproduce, and it is unusually stable.

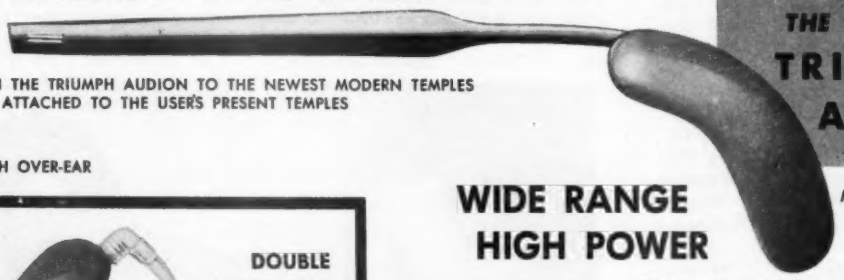
It was developed by transforming physical measurements (springiness of skin, mass of bone, damping effect of body fluids) into electrical components (condensers, inductances, resistances). The electrical results were then translated into the mechanical terms of the device.



ERWIN WEISS, *director of physical research at Beltone Research Laboratories, uses the new artificial mastoid to calibrate an audiometer for bone conduction.*

THE ONLY THREE-WAY HEARING AID

ANOTHER UNEX EXCLUSIVE . . . TRIUMPH EYEGLASS HEARING AID

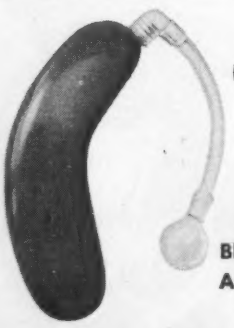


THE UNEX TRIUMPH AUDION

MODEL TV

1 ATTACH THE TRIUMPH AUDION TO THE NEWEST MODERN TEMPLES EASILY ATTACHED TO THE USER'S PRESENT TEMPLES

2 TRIUMPH OVER-EAR



DOUBLE CONTOURED FOR WEARING COMFORT AND PERFECT FIT BEHIND EVEN A SMALL EAR

WIDE RANGE HIGH POWER

WITHOUT FEEDBACK

HIGH FIDELITY HEARING FOR MONAURAL OR BINAURAL FITTINGS

3 TRIUMPH HEADBAND

Clinics have requested the Triumph headband for wearing security with active children.

WHEN YOU INVEST IN ONE UNEX TRIUMPH YOU ARE PREPARED TO SELL AN EYEGLASS HEARING AID • OVER-EAR • HEADBAND

UNEX LABORATORIES
Hathorne, Massachusetts
31 YEARS OF PROVIDING HEARING HAPPINESS TO THE HARD OF HEARING

Please mail information on SPECIAL INTRODUCTORY DEMONSTRATION OFFER . . . No Obligation.

Dealer .....

Street .....

City ..... State .....

NEW TONEMASTER PRINCESS ANNE BARRETTE HEARING AID

designed for sales, engineered for customer satisfaction!

New TONEMASTER Princess Anne BARRETTE HEARING AID

The only hearing aid in the world designed **EXCLUSIVELY FOR WOMEN!**

The Tonemaster "Princess Anne" Barrette with 58 db gain is the only hearing aid in the world designed exclusively for women. This tiny revolutionary hearing aid can be completely concealed in the hair in seconds—no one will ever realize you're wearing a hearing aid. The "Princess Anne" Barrette weighs less than one-half ounce. You can emphasize the freedom of activity that can be realized as never before with the "Princess Anne" Barrette—no need to ever worry again when wearing low cut dresses or swimming suits. The "Princess Anne" Barrette affords freedom never before enjoyed by the hard-of-hearing woman.

- **Completely Hidden in the Hair**
- **Curved for Perfect Head Comfort**
- **Weighs Less Than ½ Oz.**
- **Colors to Match Any Hair Styling**
- **Power for Severe Losses**
- **Sturdy "Lock-Tight" Barrette Clasp**
- **Wide Range Finger-Tip Control**
- **Rugged "Shock Proof" Case**
- **Economical to Operate**
- **Full One Year Guarantee**

SEVERAL SELECTED TERRITORIES AVAILABLE

Here is your opportunity to get in on Tonemaster volume profits . . . the hearing aid company that revolutionized an industry in four years. We need outstanding dealers —just as you need an outstanding product to sell. Write us today. Let's put the combination together for increased profits!

Your inquiry is cordially invited.
All communications will be held in strict confidence.

TONEMASTER
THE "MASTER" NAME IN HEARING AIDS

MANUFACTURING COMPANY

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News from the Manufacturers

'Hearing Research Institute' Becomes 'Ear Level Line'

Hearing Research Institute, Inc., manufacturers of hearing aids, has changed its name to Ear Level Line, Inc., according to Irwin Cole, the firm's president.

Said Mr. Cole: "We want to do everything possible to conform to the Code of Ethical Practices of the hearing aid industry, as outlined by the Hearing Aid Industry Conference, Inc., and the Society of Hearing Aid Audiologists."

Telex Buys Ballastran Corp.

Telex, Inc., has announced the acquisition of Ballastran Corp., Fort Wayne, Ind., manufacturers of magnetic-type devices (transformers, filters, etc.) for the electronics industry.

The purchase was the first major step in Telex's program to expand through acquisiton of or merger with electronics companies. The step will add about 25% to Telex's gross annual sales (about $4½ million for year ending March 31, 1959).

At the same time, Telex officials announced the purchase of a 25% interest in Electro-Logic Corp., recently-organized California producer of electronic instruments.

Eveready Sends Famous Letters

Facsimiles of famous historical letters are being sent to dealers by Union Carbide Consumer Products Co., makers of "Eveready" batteries. First letter in the campaign is one by George Washington, accepting the first U.S. presidency.

Otarion Buys *Deutsche-Akustik*

Purchase of the Deutsche-Akustik plant (Berlin) by Otarion Listener Corp. will double his firm's capacity, according to Leland Rosemond, Otarion president. Last year, Otarion's retail sales were about $10 million.

In addition, Mr. Rosemond added, American capacity will be doubled within the next year.

"Competitive trade into Common Market nations is becoming increasingly difficult because of labor costs," Mr. Rosemond said. "American manufacturers with European plants not only overcome the cost disadvantage but gain access to huge new markets both in Europe and elsewhere."

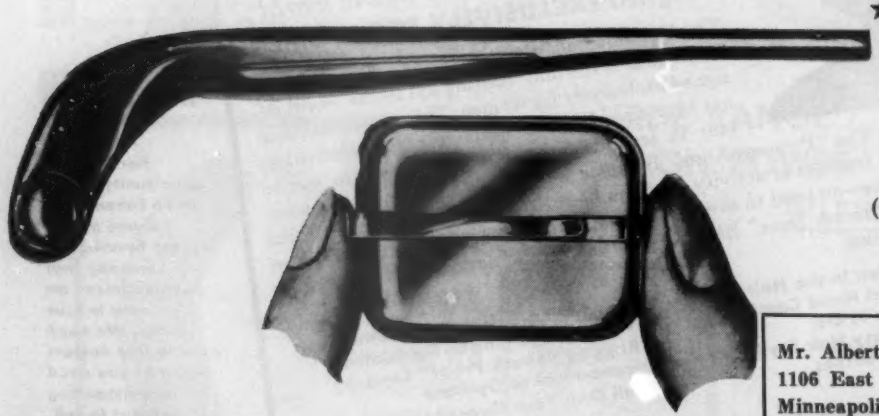
Deutsche-Akustik is the world's oldest manufacturer of hearing aid equipment.

NOW IN AMERICA! Rexton

For the first time — Switzerland's famed REXTON Hearing Aids are available to American hearing dealers! The world's most advanced designs. Engineered with typical Swiss precision, compactness. Powerful. And **priced far below the American market!**

Four basic designs for immediate delivery:

- ★ **hearing glasses**
- ★ **behind-the-ear**
- ★ **bone conduction glasses**
- ★ **convention aids**



(ACTUAL SIZE)

REXTON, INC.
a division of
The **Audibel** Manufacturing Company, Inc.

"America's fastest growing hearing aid manufacturer"

Mr. Albert Bruce, Rexton V. P.
1106 East 15th Street
Minneapolis 4, Minnesota
FEderal 9-7626

RUSH me confidential information and prices on the famous REXTON line.

Name .....

Street Address .....

City .....Zone..... State.....

Names in the News

JAMES C. TEEGARDEN, Ph.D., formerly supervisor of clinical services at the VA Benefits Office in Washington, has been appointed assistant executive director of the American Hearing Society.

JOHN W. HILPERT, formerly a Beltone consultant, has been appointed Beltone's district manager for Oklahoma, Texas, Nebraska, North and South Dakota, north and west Missouri, Colorado, New Mexico, Montana, Wyoming, Kansas, and parts of Canada. A graduate of the University of Portland (Ore.), he headed the speech correction clinic at the university and managed the school's infirmary. He is presently engaged in preparing a textbook on vocal communication.

ANDY B. HARVEY, *Certified Hearing Aid Audiologist,* has been appointed Eastern Michigan Division sales manager of Maico Electronics, Inc.

KENNETH H. DAHLBERG, president, The Dahlberg Co., presided as dean of the University for Presidents World Affairs Institute at the Young Presidents Organization convention, March 27 - April 2, Miami Beach, Fla.

CORT V. WYLIE, formerly regional manager for the Acousticon division of Dictograph Products, Inc., has been named manager of Dictograph's new western marketing and promotion department.

ROBERT E. WINSLOW, formerly associated with the Dahlberg distributor in Minneapolis, has been appointed Dahlberg's regional sales manager for Iowa and Minnesota.

EDWARD H. ATTIX has been appointed Western Division sales manager for Maico Electronics, Inc.

Obituaries

JAY L. WARREN

Services were held for Jay L. Warren, 60, who died February 9th. Mr. Warren was owner of Jay L. Warren, Inc., Chicago, makers of auditory training units and other equipment. He leaves his widow, Frances; two sons, Kenneth J. Warren and George B. Dow; a daughter, Sister Mary Stephanie; two sisters, and a brother.

LELAND A. WATSON

Memorial services were held March 24 for Leland A. Watson, president of Maico Electronics, Inc., who died March 17 in the crash of a Northwest Airlines plane near Tell City, Ind.

A graduate of the University of Minnesota and a Rhodes Scholar at Oxford, England, Mr. Watson founded Maico in 1936. He leaves his widow, Jan, and seven children.

A memorial fund for medical scholarships in Mr. Watson's name has been established; those who wish to make charitable contributions in his honor may forward their gifts to the Leland A. Watson Scholarship Fund, % School of Medicine, University of Minnesota, Minneapolis 14, Minn.

SOCIETY OF HEARING AID AUDIOLOGISTS Seal of Excellence

CERTIFICATION AND YOU

If you are a hearing aid dealer or consultant who has not yet been certified, you are invited to send in the coupon below. We'll be glad to send information about the value of certification and membership in the Society of Hearing Aid Audiologists.

SOCIETY OF HEARING AID AUDIOLOGISTS
260 Southfield Rd., Detroit 29, Mich.

Please send information about certification.

Name_____

Company_____

Address_____

City_____

State_____

It's important

THAT YOU KNOW WHERE TO BUY QUALITY

Earmolds

ANY STYLE • ANY MATERIAL

No matter what your requirements as to earmold style or material we can meet your needs with a quality product. Twenty years of continuous, high-quality production backs our claim.

Have you tried

Formtex Impression Compound

- Mixes rapidly
- Sets slowly
- Not tacky
- No ear distortion
- Absolutely no shrinkage

Use this greatly improved product and be convinced.

Ask for our brochure and further particulars

SCIENTIFIC MOULDING LABORATORIES

55 E. WASHINGTON STREET
CHICAGO 2, ILLINOIS

Highest Quality Products for 20 Years

CAN REAL DIFFERENCES EXIST UNLESS COVERED BY PATENTS?

When Otarion announced the new R_x88 Listener with Tympano Technique, we said it would take care of 25% of the hard of hearing.

Actual experience proves that this utterly new type of bone conduction eyeglass hearing aid can bring clear normal conversation to MORE THAN ONE-THIRD OF YOUR PROSPECTS!

And, like the R_x77 with Target Hearing, it is Patented and Exclusive --- ONLY Otarion dealers have it.

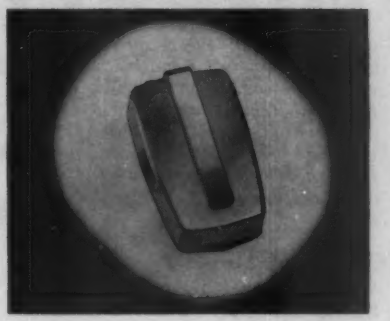
Along with the new little Behind-The-Ear Whisperwate and the unique new Super-Power pocket aid for the severely deafened, backed by powerful advertising and promotion, these aids are bringing Otarion closer and closer to Number One position in the hearing aid industry.

Otarion's rapid growth is creating new territory franchises. You'll never know if one is available for you -- unless you ask.

LELAND ROSEMOND, President
Otarion Listener Corporation
Ossining, New York

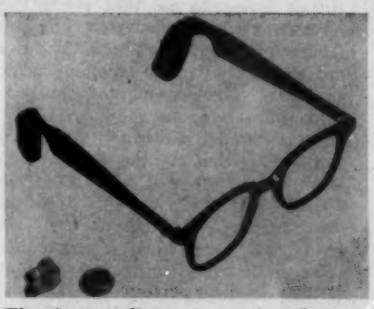
New Products & Equipment

Amplifier Module . . . Made by Viennatone (Austria), this miniature 3-transistor RC coupled module has a gain of 76 db with a frequency response flat within 3 db from 200 cps to 10 kc and a power output of 0.6 mW into a 600-Ohm inductive load at overall distortion of 10% max. It draws a maximum of 1.9 mA, operates on a 1.3V mercury cell, and has a noise figure of -43 db at 600mV output. Operates up to 126°F without loss of gain and withtands 100g shock and up to 2000 cps vibration at 20g. Dimensions are 0.237 x 0.475 x 0.240 for the epoxy resin bonded open type intended primarily for hearing aids; weight is 0.026 oz. For details, contact Caine Electronic Sales Co., 4210 W. Lawrence Ave., Chicago 30.

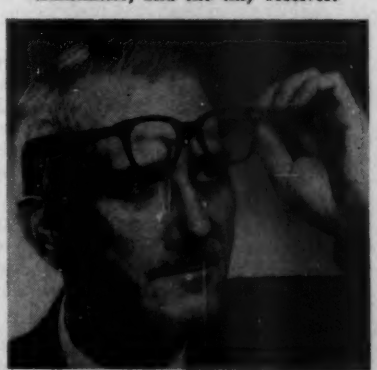


Maico "AL" . . . Small enough to be completely hidden in a woman's hair or under a man's necktie, Maico's new 7-transistor hearing aid features a push-pull circuit which provides an average acoustical gain of 54 db. Weight (incl. batteries): 0.65 oz. Battery drain: 5 ma. Takes RM 625 battery. Case size: 0.4" thick, 1" wide, 1.7" high. Features include temperature-stabilized circuit, top-mounted microphone, separate on-off switch. For details, write Maico Electronics, Inc., 21 N. 3rd St., Minneapolis 1, Minn.

"Super Sixty" . . . These new 6-transistor Maico hearing glasses provide an average acoustical gain of 48 db, maximum output of 128 db. Construction is perspiration resistant; circuit is temperature-compensated. Average battery drain: 4.0 ma. Features: separate on-off switch, snap-clasp temples for quick frame changes, spare battery compartment. For details, write Maico Electronics, Inc., 21 N. 3rd St., Minneapolis 1, Minn.



There's no direct connection between the components of Telex's "Radiant" hearing aid: eyeglasses, which house the transmitter, and the tiny receiver.



Wearer can remove glasses without detaching or removing earpiece.

WIRELESS HEARING AID 'BROADCASTS' TO RECEIVER

TELEX'S new "Radiant" hearing aid features a truly wireless connection to the receiver; in fact, there is no direct connection of any kind. Instead, a tiny radio transmitter (in the eyeglass temple bows) "broadcasts" with a power of 0.001 watt to an inconspicuous receiver in the ear.

The system operates on a carrier frequency of 200 kc — below the frequencies of the commercial broadcast band. Before producing the new hearing aid Telex cleared with Federal agencies to insure that there would be no interference with aircraft or other communications operations.

The Radiant uses six transistors; five in the transmitter, one in the receiver. Power is supplied by a 675 cell in the transmitter and a 312 cell in the receiver. Battery drain is 1 mA.

Average acoustical gain is 40 db; peak gain is 45 db.

The Radiant consists of microphone, audio amplifier, modulator, transmitting oscillator, detector amplifier, speaker, and batteries. The oscillator generates the 200-kc carrier, and the modulator varies the intensity of thits carrier at the audio frequency rate. The receiver coil in the ear picks up the transmitted carrier and feeds it to a transistor detector that changes it to amplified pulsating direct current.

In addition to advantages in performance and inconspicuous appearance claimed by the manufacturer, the new instrument allows the wearer to remove his glasses (*e.g.*, for cleaning) without detaching or removing the ear button, as must be done with conventional eyeglass aids. In addition, absence of any connection between transmitter and receiver is said to minimize the possibility of feedback.

For more details, write Telex, Inc., 1633 Eustis Ave., St. Paul, Minn.

Letters from the Readers

Wants Editorial Information

• As director of the newly-established news service of The Dahlberg Company, I would like to ask your assistance in making our service as efficient as possible.

Would you inform us of your deadline for AUDECIBEL? Also, is there a certain type of copy you're particularly interested in that we at Dahlberg could supply? What is the preferred length of your articles?

We are aware that AUDECIBEL is strictly an educational and professional journal of the Society of Hearing Aid Audiologists.

The main function of the Dahlberg News Service is to keep the various publics of The Dahlberg Company informed of the company's progress and activities.

ARTHUR B. LAZERE

Public Relations, The Dahlberg Company, Minneapolis, Minn.

(AUDECIBEL is published six times a year—January, March, May, July, September, November — and goes to all otologists, all clinics and hearing centers, all schools for the deaf, and all hearing aid dealers, in addition to Society members. Deadline is first of month preceding publication month. Editorial requirements are described in our Fact Sheet for Writers, copy of which we've sent to Mr. Lazere. It's available to anyone who is interested in writing for AUDECIBEL *. . . Ed.)*

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Abstracting Service

• The National Index on Deafness, Speech and Hearing has been established for the purpose of providing wide coverage of the professional literature on deafness, speech, and hearing.

Its Board of Directors, consisting of representatives of Gallaudet College and the American Speech and Hearing Association, has recommended the issuing of a number of publications. The most important of these proposed publications is a quarterly journal of abstracts, which is scheduled for initial publication in late 1960.***

In order to provide good coverage of the litreature, it is necessary that we supply each abstractor with copies of the journals assigned to him. We, therefore, are seeking to establish professional exchanges with all the journals on our list.

Your journal is on this list and frequently publishes important articles relating to our field. It would be of great value to us to have an exchange agreement with you.***

STEPHEN P. QUIGLEY, PH.D.

Director, National Index on Deafness, Speech and Hearing, Gallaudet College, Washington 2, D.C.

(We'll be happy to exchange subscriptions with the National Index, *and we wish them success in their endeavors . . . Ed.)*

Advertising Response

• Many thinks for the superb story on my company (and me!) in the March issue of AUDECIBEL. I very much appreciate it. I firmly believe that our program is one of the finest in the country and that our product is also. I think we are doing the hearing aid dealers a real service.

I also should like to point out that we have received numerous letters, not only from dealers, but from doctors, too. This was actually a surprise to me since I didn't realize that your publication was as well circulated as it is!

I will be sending you my application for certification very shortly.

RALPH CAMPAGNA

President, Danavox North America, Inc., Wayzata, Minn.

National Committee on Ethics

• As AUDECIBEL has so ably reported, the National Committee on Ethics of the Hearing Aid Industry has started to function. I am secretary to the Committee and a newcomer to the hearing aid industry, but I would like to express an opinion or two, for what they are worth.

It is a little early to judge the effectiveness of the Committee, but I do not think it is at all premature to comment about the spirit being shown. (As a matter of fact, "spirit" seems to be a fine word to describe the men and women who make up this industry. They do not hesitate to speak their minds and I admire them for it.) This spirit is one of cooperation and enthusiasm. The Code of Ethics is, I think, most welcome. It is my opinion that the industry, all levels of it, is quite serious about establishing proper and practical standards and persuading members that voluntary acceptance will best serve the hard of hearing at the same time it is good business sense. I feel certain that the coming months will bear this out.

As I say, I am new to the industry and not familiar with its practices. But it seems to me that every field, no matter what its purpose, can benefit from free give-and-take. The Committee should be an excellent vehicle for this. One reason, of course, is that there is equal representation of dealers and manufacturers. This cannot help but produce an exchange of opinion that will be highly beneficial. And there is more than just this internal functioning, too. Already we have had correspondence from industry members that demonstrates how important give-and-take is. Almost every day there is something in the mail that affords a new perspective on one subject or another. I firmly believe this will prove one of the most important results of Committee activity.

Let me applaud my employer, even if it makes me seem an apple polisher! I believe that the industry—the HAIC and the SHAA, plus any others —is on the way to performing a noble service. I hope to have the privilege of helping to make this come true.

WINIFRED BLANCHARD

Secretary, National Committee on Ethics of the Hearing Aid Industry, Suite 715, 40 E. 34th St., New York 16, N. Y.

(Information about any violations of the Code of Ethical Trade Practices should be sent directly to Mrs. Blanchard at the above address . . . Ed.)

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MODEL MA-57 is an automatic pressure limiting instrument, adjustable from 108 to 136 decibels. Output pressure is automatically controlled to keep loud sounds from exceeding the predetermined level — **without distortion.** Very loud sounds actually shut off the instrument momentarily.

MODEL M-6 is comparable to the M-4, except that it is designed to limit to a maximum output pressure of 123 to 131 decibels. It makes available the same wide variety of frequency response settings obtainable with the M-4.

MODEL M-4 is intended for the enhancement of hearing in either "conductive" or "nerve loss" cases, where maximum deliverable pressures from 133 to 140 decibels are permissible and desirable. Where a sound pressure tolerance problem exists, the Vicon MA-57 should be used.

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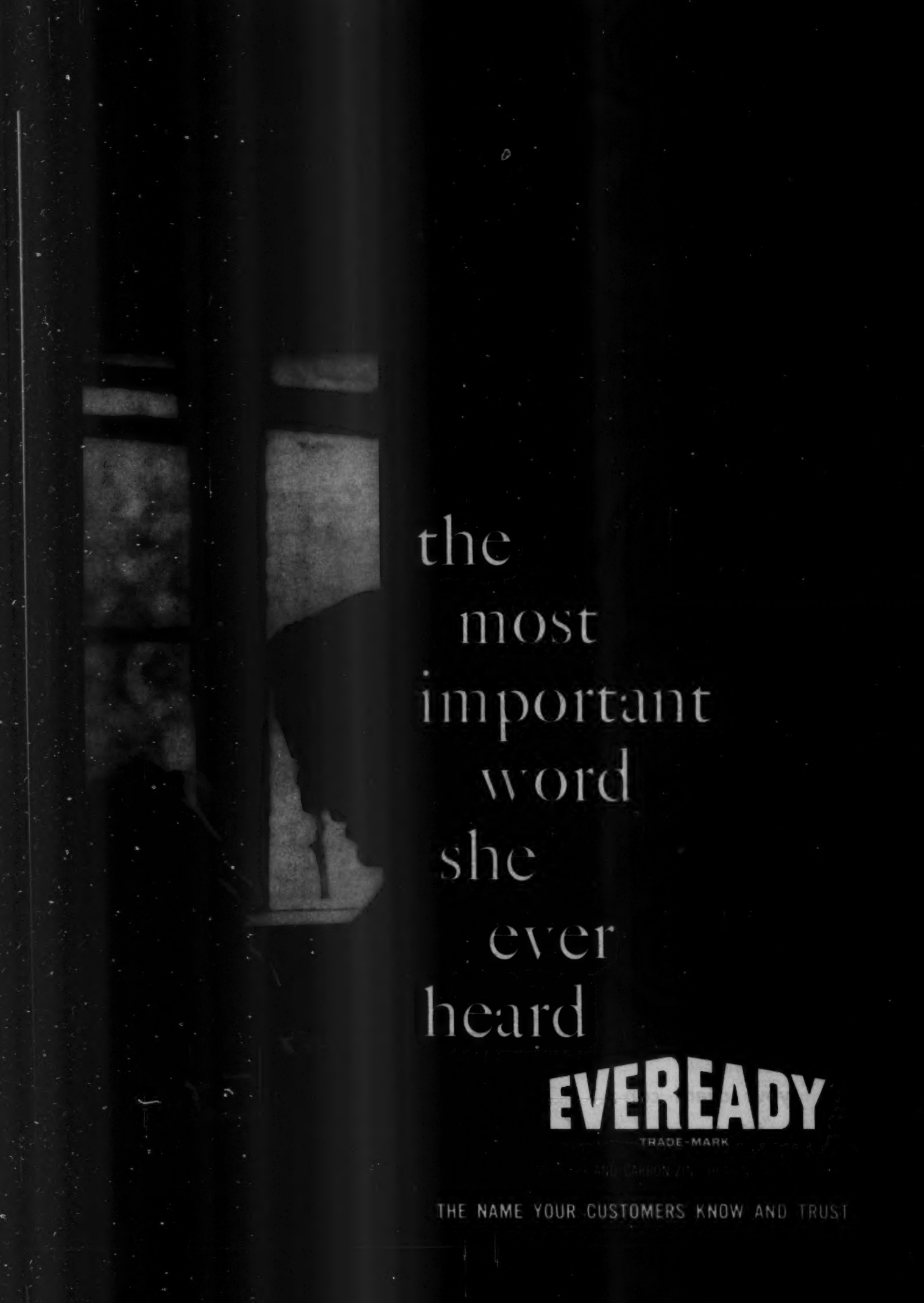
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